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ABSTRACT

Based on the assumption that changes in the educational experience require changes in the evaluation of student learning, this fourth guidebook in a series of nine video conferences on school restructuring presents information on the evolution of student assessment. Four shifts in educational assessment are identified: from testing to multiple assessments, from cognitive to diverse abilities, from uni- or bi-dimensional to multidimensional measurement, and from isolated to integral assessment. Also provided are pre- and post-conference activities, a program evaluation, essays and school-based activities highlighting conference topics, information about other video conferences in the series and computer forums, course credit information, a list of supplementary materials, 73 references and 5 video sources, and a list of 9 regional resources. Biographical information is given on the conference presenters. (LMI)

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RESTRUCTURING TO PROMOTE LEARNING IN AMERICA'S SCHOOLS

A GUIDEBOOK

4 Multidimensional Assessment: Strategies for Schools

Presented by the

North Central Regional Educational Laboratory

and the

Public Broadcasting Service

U.S. DEPARTMENT OF EDUCATION
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Use of This Guidebook

Guidebook Purposes

1. **Before** the video conference, the ***Guidebook*** provides pre-conference activities.

2. **After** the video conference, the ***Guidebook*** contains a post-conference activity and program evaluation.

3. The essay highlights topics discussed during the video conference. It is followed by two sets of activities: one set relates directly to the essay; the other set is school-based.

4. Finally, this ***Guidebook*** provides information about the remaining video conferences in the series, the computer forums, course credit, and supplementary materials that are available for this professional development program.

Instructions to the Site Facilitator

Pre-Conference Activities
(Allow 30 minutes.)

Before viewing the video conference:

ASK the participants to introduce themselves. If possible, have them form small groups or pairs.

ASK the participants to complete the **Pre-Conference Activities.** These activities are on page 4 and are identified by the hand/pencil symbol. ✍

Post-Conference Activities
(Allow 30 minutes.)

After viewing the video conference:

ASK the participants to complete the **Post-Conference Activity**. This activity is on page 6 and is also marked by the hand/pencil symbol.

ASK the participants to complete the Program Evaluation.

ADVISE participants that workshop activities have been included in this ***Guidebook***. These activities may be completed in schools, state education agencies, or other educational facilities.

Video Conference 4

MULTIDIMENSIONAL ASSESSMENT:

STRATEGIES FOR SCHOOLS

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Guidebooks and videotapes of these series may be purchased from:

PBS Video
1320 Braddock Place
Alexandria, VA 22314
(703) 739-5038

Guidebooks and additional information are also available from:

North Central Regional Educational Laboratory
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NCREL

The North Central Regional Educational Laboratory is a nonprofit organization devoted to supporting efforts of the educational community by bridging the gap between research and practice to provide effective instruction for all students. NCREL is primarily funded through the Office of Educational Research and Improvement of the U.S. Department of Education. NCREL and PBS have been presenting national video conferences since 1987.

PBS

The PBS Elementary/Secondary Service acquires and distributes high quality, K-12 instructional television programs; provides professional development for educators; delivers electronic and print information services for and about Public Television (PTV) and education; serves as a national advocate for the use of technologies; and tracks developments in national policy for the educational television community.

The PBS Adult Learning Service (ALS) offers college-credit television courses through local partnerships of public television stations and colleges. Since 1981 more than 1,500 colleges in cooperation with 300 stations have enrolled over one million students in ALS-distributed courses. In August 1988 ALS launched the PBS Adult Learning Satellite Service (ALSS) as a direct satellite service for higher education, offering a wide variety of programming.

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Table of Contents

Page

Overview: Professional Development Series 1

Video Conference Activities (for the Site Facilitator: ✍)

Pre-Conference Activities 4
Post-Conference Activity 6
Program Evaluation 8

Essay: Multidimensional Assessment: Strategies for Schools

Why Should Assessment Be Based on a Vision of Learning? 12
What Are the Major Changes in Testing and Assessment? 13
How Do You Implement Multidimensional Assessment? 24

Essay Activities

Why Should Assessment Be Based on a Vision of Learning? 32
What Are the Major Changes in Testing and Assessment? 33
How Do you Implement Multidimensional Assessment? 37

School-Based Activities

Activity 1: Preparing for Change 39
Activity 2: Getting Started 43
Activity 3: Continuing to Grow 46

Additional Information

Program Descriptions 47
Computer Forums 49
Materials 51
Course Credit Information 52
Local Involvement 52

References and Resources

Bibliography 54
Video Sources 58
Presenters' Biographical Information 59
Regional Resources 62

Order Form 63

Selected Readings ☆

OVERVIEW: PROFESSIONAL DEVELOPMENT SERIES

NCREL's Goal: A Forum on Restructuring Schools

The concept of educational laboratories emerged during the War on Poverty in the 1960s. Education was viewed as crucial to anti-poverty efforts, but the inability of policymakers, researchers, and practitioners to communicate with one another about effective strategies and practices was a significant obstacle to substantial educational improvement. One of the reasons Congress created the laboratories was to promote dialogue about promising practices among these diverse actors. Today there are nine federally funded regional educational laboratories in the country working to help educators and policymakers improve the quality of education by applying research findings to educational practice.

NCREL sees telecommunications as an effective vehicle for creating a forum on restructuring schools that brings together practitioners, policymakers, and researchers so that they can enrich each other's perspectives. Telecommunications can bridge geographic separations and create networks of common stakeholders in restructuring efforts.

However, the satellite transmission itself does not create a forum. How the telecommunications event is structured is a crucial factor in determining the effectiveness of the forum. This professional development series was designed to:

- Focus the movement for restructuring schools on the fundamental issues of schooling: learning, curriculum, instruction, and assessment
- Provide opportunities for participants to interact with researchers, teachers and administrators, and policymakers in a structured thinking process
- Help apply new ideas and develop local expertise
- Promote a broad range of local and electronic networking
- Help educators prepare students to meet the new roles and opportunities of a profoundly changed and changing society
- Provide a framework for organizing what research says about fundamental change

Components of the Professional Development Series

Four components of this professional development series enhance the potential for creating a national forum:

1. Video conferences
2. Computer forums
3. Print materials
4. College credit

See Additional Information, page 47.

Video Conference Titles and Dates (1990)

1. The New Definition of Learning: The First Step for School Reform (February 14)
2. The Thinking Curriculum (March 21)
3. The Collaborative Classroom: Reconnecting Teachers and Learners (April 26)
4. Multidimensional Assessment: Strategies for Schools (May 24)
5. Schools as Learning Communities (June 6)
6. Many Roads to Fundamental Reform: Getting Started (June 20)
7. Many Roads to Fundamental Reform: Continuing to Grow (July 11)
8. The Meaning of Staff Development in the 21st Century (July 25)
9. Reconnecting Students at Risk to the Learning Process (August 8)

Content

The core message of the video series is this: A fundamental restructuring of schools should be driven by a new vision of learning, a vision which transforms all dimensions of schooling. Thus, the first video conference focuses on the new research on learning. The next three video conferences discuss the cognitive and social environments that can be created in classrooms to support meaningful learning. The last five video conferences explore changes that can be made in the social organization of schools to support these classrooms.

VIDEO CONFERENCE ACTIVITIES

Pre-Conference Activities

Post-Conference Activity

Program Evaluation

Pre-Conference Activities

INSTRUCTIONS TO SITE FACILITATOR:

ASK the audience to form groups of 3 to 5 people. GUIDE them through the Pre-Conference Activities.

Activity 1: Can we change the way we use assessment in our schools?
(Allow 10 minutes.)

WRITE a sentence or two describing what your classroom would be like if the following things were to happen:

- You could assess the important things you teach, not just basic facts and skills
- Assessment were a natural part of your teaching rather than a disruption
- Your students looked forward to assessment experiences
- Your students could assess their own learning and could figure out what to do to improve their own learning
- Your students could demonstrate what they learned without filling in bubbles on a computer answer sheet
- Assessment informed parents and the larger community of the meaningful learning in which your students were engaged

Activity 2: What is this video conference about?
(Allow 5 minutes.)

SURVEY the essay, activities, and biographies in this guide to PREDICT what you will learn in this video conference. WRITE your predictions below. SHARE your predictions with a partner or group if possible.

Activity 3: What problems in assessment do you want this video conference to address?
(Allow 10 minutes.)

DESCRIBE two improvements in your classroom, school, district and/or state assessment programs that you want this video conference to help you make.

Post-Conference Activity

INSTRUCTIONS TO SITE FACILITATOR:

ASK the audience to form groups of 3 to 5 people. GUIDE them through the Post-Conference Activity.

Activity: How can this video conference help you restructure your assessment program to include new ideas and principles of assessment?
(Allow 15 minutes.)

RESPOND to the following statements. SHARE your ideas with a partner or group if possible.

1. IMAGINE that you have been asked to describe one of the new views of assessment that you learned about in the video conference to a colleague or parent who may have difficulty understanding its value. DESCRIBE its purposes; its consistency with new learning, curriculum, and collaborative classrooms; and its importance in restructured schools as you would to this colleague or parent.

2. SELECT or CREATE two specific types of multidimensional assessment you could implement as part of your next reporting period's evaluation in a content area you teach or supervise.

3. What strengths in your school, district, or state would support a multidimensional assessment program? DESCRIBE persons to contact and actions that students, teachers, administrators, and community members should take to support multidimensional assessment in your school.

4. REVIEW your concerns about assessment in the Pre-Conference Activities. Did this video conference address any of those concerns? If so, WRITE below how it has helped.

Program Evaluation

Please fill in the appropriate circles on your answer sheet using a #2 pencil and return it to your site facilitator. (Or send to: Debra Beauprez, 295 Emroy Avenue, Elmhurst, IL 60126.)

On the **Special Codes** section of your answer sheet please fill in your state : 1 = IL; 2 = IN; 3 = IA; 4 = MI; 5 = MN; 6 = OH; 7 = WI; 8 = OTHER STATE; 9 = OUTSIDE U.S.

PART ONE: Your opinions about the relevance and usefulness of the video conference

	Strongly Disagree <——> Strongly Agree
1. The topic of this video conference is relevant to my needs and interests.	A B C D E
2. The content of the video conference is appropriate to the type of community I live in and its schools.	A B C D E
3. I learned a great deal from this video conference.	A B C D E
4. The video conference enriched the way I look at education.	A B C D E
5. The video conference may influence the way I educate (or involve myself in education as a parent or community member).	A B C D E

PART TWO: Questions about activities before, during, and after the video conference

6. I am participating in this video conference:
   A - Alone
   B - With colleagues (not in a team)
   C - In a school-based team
   D - In a district team
   E - Other

7. If you participated in this video conference in a team, who is involved in your team?
   A - State education/intermediate service agency staff
   B - Central office administrator
   C - School building administrator(s)
   D - Teachers
   E - Parents/community members

8. Did the site facilitator conduct a **pre-conference** activity?
   A - Yes
   B - No

9. Did you participate in a pre-conference activity?
   A - Yes
   B - No

10. Did the site facilitator conduct a **post-conference** activity?
    A - Yes
    B - No

11. Did you participate in a post-conference activity?
    A - Yes
    B - No

Have you completed any of the activities 12-16 as follow-up to any of the video conferences?

12. Did you use any of the previous ***Guidebooks***? A - Yes B - No

13. Did you read this ***Guidebook***? A - Yes B - No

14. Did you complete the pre-conference activities in this ***Guidebook***? A - Yes B - No

15. Did you complete the post-conference activity in this ***Guidebook***? A - Yes B - No

16. This is my first video conference and I have not completed any follow-up activities yet. A - Yes B - No

PART THREE: Your opinions about the content and delivery of the video conference

	Too Short <——> Too Long				
17. How would you judge the overall length of the video conference?	A	B	C	D	E
	Too Little <——> Too Much				
18. How would you evaluate the amount of information presented in the video conference?	A	B	C	D	E

Please evaluate the following components or aspects of the video conference (questions 19-28):

	Poor <——> Excellent				
19. Pre-conference activity	A	B	C	D	E
20. The video conference itself	A	B	C	D	E
21. Post-conference activity	A	B	C	D	E
22. Presentations	A	B	C	D	E
23. Interaction with presenters	A	B	C	D	E
24. Pre-taped segments	A	B	C	D	E
25. Interaction with video conference participants at your site	A	B	C	D	E

	Strongly Disagree <——> Strongly Agree
26. The technical quality of the video conference was good.	A B C D E
27. The video conference site was conducive to learning.	A B C D E
28. I would recommend this video series to others.	A B C D E

PART FOUR: Information about you

29. **Educators Only:** Please indicate your school category on your answer sheet.
A - Elementary school/junior high
B - High school
C - District
D - College/University
E - State/Intermediate Agency

30. **Educators Only:** Please indicate on your answer sheet your position.
A - Teacher
B - Administrator
C - Staff
D - Professor

31. **Non-Educators Only:** Please indicate the primary group you represent.
A - Parents
B - Community
C - School Board
D - Business
E - Social Services

32. Circle the best description of your district.
A - Urban
B - Suburban
C - Rural

33. Did you view this video conference at a live site?
A - Yes
B - No

34. How long did it take you to get to the video conference site?
A - 0-15 minutes
B - 16-30 minutes
C - 31 minutes to 1 hour
D - 1 hour to 1-1/2 hours
E - more than 1-1/2 hours

35. Did you participate in Video Conference 1 (either live or taped)?
A - Yes
B - No

36. Did you participate in Video Conference 2 (either live or taped)?
A - Yes
B - No

37. Did you participate in Video Conference 3 (either live or taped)?
A - Yes
B - No

37. Please share any other comments about the video conference and suggestions for future video conferences.
(Use the section marked "comment" on your answer sheet.)

Essay

MULTIDIMENSIONAL ASSESSMENT:

STRATEGIES FOR SCHOOLS

Why Should Assessment Be Based on a Vision of Learning?

What Are the Major Changes in Testing and Assessment?

How Do You Implement Multidimensional Assessment?

Why Should Assessment Be Based on a Vision of Learning?

New Assessment for New Learning

Guidebook 1 explores a new definition of learning which is based on cognitive, philosophical, and multicultural research perspectives. These perspectives suggest that meaningful learning occurs when a learner has a knowledge base that can be used with fluency to make sense of the world, solve problems, and make decisions. Learners need to be self-determined, feel capable, and continually strive to acquire and use the tools they have to learn. They need to be strategic learners who have a repertoire of effective strategies for their own learning. Finally, they need to be empathetic learners who view themselves and the world from perspectives other than their own.

As learning in schools is redefined, both the curriculum and the classroom environment need to be aligned. ***Guidebook 2*** discusses the thinking curriculum which has a dual agenda of content and process for all students. This curriculum includes in-depth learning; involves students in real-world, relevant tasks; engages students in holistic tasks; and utilizes students' prior knowledge. ***Guidebook 3*** in this series extends the new thinking curriculum into the classroom and suggests that the redefinition of learning requires a collaborative classroom which is notable for its change in the roles of students and teachers. The collaborative classroom is characterized by shared knowledge among teachers and students, shared authority among teachers and students, teachers as mediators, and heterogeneous groupings of students.

These changes in the definition of learning, the curriculum, and the classroom context lead to ***Guidebook 4***—"Multidimensional Assessment." If indeed the shape of the educational experience for students is being changed, the ways that have been used previously to evaluate successful student learning need to undergo a shift as well. This guidebook presents the evolution that is currently underway in the concept of student assessment and the implementation of this new vision of assessment in various educational institutions throughout the United States. Four shifts in learning and assessment are discussed: from testing to multiple assessments, from cognitive to a range of abilities and talents, from assessments of one or two dimensions to multidimensional assessment, from testing as an isolated event to assessment as an integral part of instruction.

What Are the Major Changes in Testing and Assessment?

From Testing to Multiple Assessment

In the traditional schooling experience, student learning was most often measured only by testing: specific questions which (1) are tangible and structured and can be administered within a limited time period and (2) usually tap a limited number of cognitive knowledges and skills. Now, with the expanded concept of learning, it is increasingly important to remember that paper- and pencil-testing is only one way to collect information about student learning. The broader concept of assessment is more appropriate. Assessment includes paper- and pencil-testing but may also include other procedures such as rating items on scales, observing student performances, critiquing student products, conducting interviews, and reviewing a student's background or previous performance.

The concept of assessment broadens the kind of information that is collected about students and the way that this information is used in the evaluation of student learning. Assessment needs to tap and build upon the strengths that learners, in all their diversity, bring to the learning situation.

New Assessment Strategies

Grant Wiggins, senior associate with the National Center on Education and the Economy and a special consultant on assessment for the Coalition of Essential Schools, and others have been developing new assessment strategies such as the portfolio and day-to-day assessment. A portfolio consists of student exhibitions that demonstrate mastery of the skills of inquiry and expression. Credit is given on the basis of what students can actually do in "showing off" their knowledge and know-how. The exhibitions require reading, writing, questioning, speaking, and listening. Exhibitions are the culmination of a series of performances in an area, usually a graduation-level exercise or final class project.

The staff at the Coalition of Essential Schools believes that required periodic public exhibitions, focused on the student's ability to *use* and *display* knowledge intelligently, would better ensure that essential skills are taught and learned. Exhibitions can yield an authentic measure of students' abilities to engage in inquiry and skillful expression, and they can motivate and engage students by involving them in a public challenge, such as a project in a science fair or an in-class presentation.

Assessment performances are day-to-day activities that can also be authentic and engaging demonstrations of students' abilities to grapple with the central challenges of a discipline in real-life contexts. Ideally, these performances become an integral part of the instructional cycle, and feedback provided by the teacher and peers is meant to be formative—that is, it is intended to help the student assess his or her strengths and weaknesses, identifying areas of needed growth and mobilizing current capacity. Performances are provocations for what needs to be learned and extensions of what *is* learned and can help push the student to the next level of skill in performance. Performances become tools for reflection on learning accomplished and learning deferred.

School-Based Examples

Many schools are designing and using innovative assessment strategies. Some of these techniques are called authentic assessment, performance-based assessment, portfolio assessment, process assessment, exhibits, demonstrations, and profiles. Regardless of the label, each of these techniques has moved beyond the concept of measuring student learning using multiple choice and other simple tests as single measures of student learning at one point in time.

English At South Medford High School in Medford, Oregon, seniors must complete a three-part Senior Project to graduate. Students first choose a topic of interest to them, conduct research, and write a paper. Then they use the information in the papers to create real-life projects. While these projects are to satisfy requirements for senior English, the rich variety of topics chosen makes these efforts interdisciplinary. One aspiring singer wrote and performed a song which she had learned to orchestrate. Another student wrote about Big Brother and Big Sister programs and recruited students to work with children from broken homes. The third phase of the project is a formal presentation before a panel of faculty and community members, some of whom are experts in the topic. Following the formal presentation, judges ask each senior several questions to evaluate impromptu speaking skills, knowledge level, and poise.

Writing Oregon's Lacomb Elementary School implemented a new writing program after staff enrolled in for-credit courses on teaching writing as a process and integrating writing across content areas. Staff training also addressed cooperative learning, whole language learning, and assessment. Staff developed holistic scoring procedures to assess writing and document improvement over time. Assessment is ongoing in classrooms; students use feedback from classmates and teachers to assess and improve performance. Conferences with partners and teachers, before and during writing, help students select topics and polish skills. Audiences are the class and the larger community: a Young Authors' Fair gave students opportunities to share their writing, illustrating, reading, and storytelling skills with parents and community members. In turn, local residents serve as role models by sharing their stories and poems with youngsters in school.

Social Studies In his article, "Teaching to the (Authentic) Test," Grant Wiggins examines high school assessment strategies of two coalition schools. At Hope High School, Providence, Rhode Island, ninth grade students were asked to complete an oral history project based on interviews and written sources, and to present their findings in class. They selected their subjects from topics such as their family, running a small business, substance abuse, teenage parents, or recent immigrants. Students were then asked to create three hypotheses based on their preliminary investigations and four questions they would ask to test each hypothesis. Students were evaluated on such criteria as whether they had investigated three hypotheses, described at least one change over time, selected four appropriate sources for the interviews, asked valid questions, noted important differences between "fact" and "opinion" in answers, used evidence to prove the ultimate best hypothesis, and effectively organized their writing and presentation to the class.

A four-part final for a twelfth grade Humanities course at Thayer High School, Winchester, New Hampshire, asked students to choose a topic and construct their own final test subject to approval by the project supervisor; submit a written report conforming to stated grammar requirements; make a multi-media, 30-minute oral presentation; and serve on four evaluation teams of other students' presentations, playing a different role on each team—either a journalist who summarizes important details or a coach who suggests improvements for the presentation.

Science California teacher Cathy Klinesteker uses these closure activities for authentic assessment at Evergreen School in Cottonwood: (1) At the end of a unit, students write a paper for another class of students (younger, older, or the same age) explaining the concept. Example: Sixth graders write a book for fourth graders explaining the cycle of a star. (2) Cooperative groups of students do an artistic representation (poster, model, videotape, slide show, etc.) of a concept. Example: For a communication unit, students created a poster demonstrating their understanding of elements of communication, including nonverbal, questioning, paraphrasing, and empathy. The representation must show the interrelatedness and importance of each component. (3) Using equipment or a drawing (depending on the developmental stage of the students), students demonstrate understanding of a scientific principle such as an open electrical circuit; stream cutting during flood stage of a river; or a food web in the ocean, a pond, a desert, a rain forest, etc. (4) With partners, students prepare a debate demonstrating understanding of two sides of a controversial issue.

Math In the Mendocino Middle School, Mendocino, California, math and science teacher Cory Wisnia's assessment strategies evaluate students' knowledge of a specific concept or subject area and the life skills they need for the future. One of the ways Wisnia teaches real-life skills in math and science classes is through projects which also can serve as final measures of learning. He teaches a unit or concept and then assigns projects that demonstrate how well students understand the concept. For example, to assess area and perimeter relationships in math, Wisnia asked the class to use a particular constant, "say 1250 square feet," and design a scale model of a dream home, using graph paper for the floors. These strategies help Wisnia judge how much learning the student retained. He found that, "While I thought my students fully understood area relationships before we started on the project, in fact they really learned much more as they went along, trying to find answers to specific questions such as how many square feet should a bathroom be?"

At Hazen Union School in Hardwick, Vermont, math teacher Jean Hackett stresses performance assessment. Her students work in groups on these projects. Hackett encourages each group to try different group approaches, such as brainstorming or "jigsawing" (each student is responsible for a "piece" of the puzzle) to solve a problem. For example, instead of having students multiply two numbers using a simple computation approach, she challenges them with a problem they can solve only by collecting data and using multiplication. When they are finished, each group has a product from which Hackett is able to assess both the math content her students know and their strategies.

From Cognitive to Multiple Abilities

Historically, a very narrow concept of human intelligence has driven views of human learning. This concept was under close scrutiny in the late 70s when there were signs of reawakened interest in the theories and research of intelligence. Robert Sternberg, a psychologist at Yale University, was perhaps the most important catalyst for this re-examination, although researchers from different areas in psychology have joined in the rediscovery of an enhanced concept of intelligence.

Defining Multiple Abilities and Skills

Over the past two decades, Howard Gardner, a cognitive psychologist from Harvard University, has been developing a theory of multiple abilities, talents, and skills. Gardner argues that traditional schooling emphasizes only two abilities—verbal-linguistic (especially in written form) and logical-mathematical. Yet, there are many other kinds of knowledges or talents that enrich our lives and help us respond effectively to our environment. He lists the following, while emphasizing that there are many others as well.

- **Visual-spatial** Capacity to perceive the visual-spatial world accurately and to modify or manipulate one's initial perceptions
- **Bodily-kinesthetic** Abilities to control one's body movements and to handle objects skillfully
- **Musical-rhythmical** Abilities to produce and appreciate rhythm, pitch, and timbre, and appreciation of the forms of musical expressiveness
- **Interpersonal** Capacities to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people
- **Intrapersonal** Knowledge of one's own feelings, strengths, weaknesses, desires, and the ability to draw upon this knowledge to guide behavior

- **Logical-mathematical** The abilities to discern logical or numerical patterns and to handle long chains of reasoning.
- **Verbal-linguistic** Sensitivity to the sounds, rhythms, and meanings of words; sensitivity to the different functions of language

Expanding Views of Abilities and Skills

Another individual who has been working to expand the way that thinking and learning is viewed is Protase "Woody" Woodford, Head of the Language Group, Testing Development, Educational Testing Service (ETS). He and his colleagues at ETS have been working in foreign languages to develop an expanded concept of the knowledge and skills necessary to be a successful learner of a foreign language.

Woodford believes that successful language proficiency assessment happens only when students are evaluated on their speaking ability. Since no oral tests were available, ETS developed a scale for assessing language proficiency based on a test used by the U. S. Defense Language Institute. This scale measures proficiency at five levels: At the lowest level, Zero, students are unable to respond, even to a simple address such as "Hello." At the Novice level, students' skills range from "low"—recycling memorized material learned in class to "high"—conversing in very simple language. The third level on ETS' scale is Intermediate. At this level, students no longer rely on memorized information, but can carry on narrative conversations, though only in the present tense. The more advanced intermediate students are able to speak in either the future or the past tense, but not both. Advanced students are able to deal with descriptions and concepts not only in the present tense, but in the future and past and can do this regularly. The last level is Superior. These students have a full range of competency. They can deal with abstraction, negotiate ideas, and can use conditional "if" clauses.

Gardner and Woodford, as well as many others, continue to challenge views of intelligence and learning that have traditionally directed the schooling experience. As these views evolve, it becomes necessary to examine the impact they have on assessing and evaluating student learning.

Toward Multidimensional Assessment

Gardner has suggested that traditional schools have emphasized the assessment of logical-mathematical and verbal-linguistic abilities, leaving other abilities out of the assessment process. Given the axiom that you "inspect what you expect" the message that continues to be sent to students is that only certain dimensions of learning are important. As different abilities and skills become increasingly valued in schools, new visions of assessment increasingly include assessment of the various abilities and skills. Moving to a concept of "multidimensional assessment" means that evaluation of students will be based on a broader concept of intelligence, ability, and learning. Not only will logical and verbal abilities continue to be assessed, but assessment also will include visual, auditory, kinesthetic, intrapersonal, and interpersonal abilities. This means assessing students' repertoire of learning strategies, skills in communicating with others, and knowledge as it is applied to day-to-day and culturally diverse contexts.

The new vision of learning and evaluation of student learning reflected in the term multidimensional assessment is broad-based, relevant to real life, process oriented, and based on multiple measures which provide a rich portrayal of student learning.

Figure 1. Type of Assessment

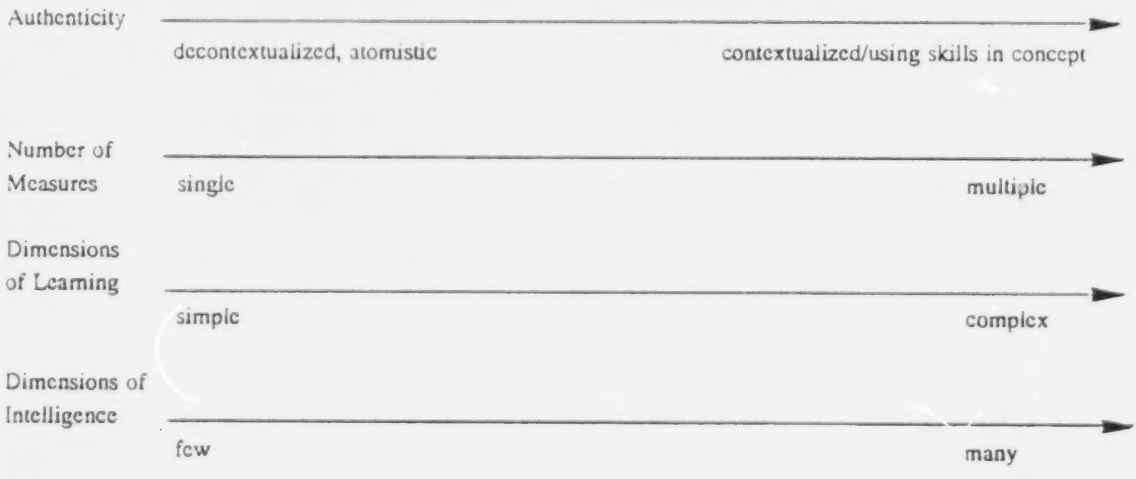


Figure 1 portrays some of the aspects of multidimensional assessment. The first continuum shows a movement from decontextualized, atomistic tests (short answer, fill-in blank, multiple choice, true/false, etc.) to authentic, contextualized tasks such as performances and/or products. The second continuum shows movement from a single measure of student learning to multiple measures. The third continuum depicts movement from simple to complex dimensions of learning while the fourth depicts movement from assessment of few dimensions of intelligence to assessment of many dimensions. Multidimensional assessment taps the power and diversity of active learning, creates multiple sources of information to support instructional decision making, and helps students become more reflective and capable learners.

A group of determined and dynamic teachers at Key School in Indianapolis embraced Gardner's theories and worked with Gardner and his colleagues to develop a curriculum based on his ideas. Key School emphasizes the use of all kinds of abilities by students. In addition to instruction in mathematics and language arts, students also play the violin, speak Spanish, move their bodies to music, enter data into a computer and solve board games that emphasize spatial skills. The curriculum is integrated through the use of schoolwide themes that span all grades and all subjects. Themes are studied in depth for nine weeks.

In implementing the new curriculum, the staff found that standardized tests were not usually useful in measuring the broad range of abilities fostered in the curriculum. Most tests measure only a narrow slice of children's linguistic and mathematical abilities. And even in these areas, the tests fail to reflect student's ability to think critically and creatively, their motivation to learn, or their capacity to engage in self-assessment.

Due to the limitations of such tests, teachers at Key School had to develop assessment strategies that would yield richer, more qualitative information about student achievement and instructional effectiveness. Strategies developed include the following:

- Videotaped portfolios document the learner's interests and accomplishments and assist teachers in evaluating each student's progress from year to year. The portfolios include tapes of an initial interview with the student and excerpts of his or her work throughout the year. Parents receive the videotape at the end of the year—it serves as a rich portrayal of their children's growth and an important supplement to information from report cards and results of standardized tests.

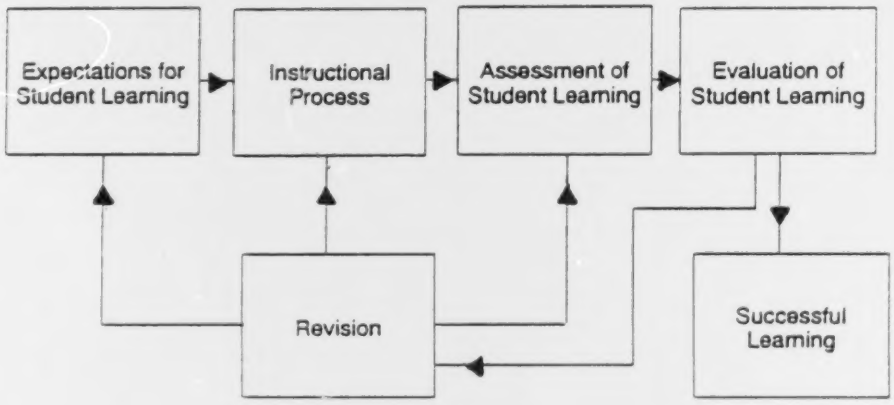
- Each student keeps a journal with weekly entries about the school's themes and his or her projects.
- Students spend a part of each week in a media-rich room where they can choose from a range of board games, puzzles, audio tapes, and other materials requiring the use of one or more of the seven abilities. A teacher observes and records which activities children select and how they tackle problems. That information will be combined with other evidence about the learner's interests and strengths to form a profile for each student.
- Students also carry out an original project each nine-week grading period on a theme that encourages students to think across subject lines. One theme was "connections," which explored how people are connected to their environment. As a project in this theme area, one student constructed a diorama showing ways in which turtles interact with people. Students are helped to assess their own projects by considering how well they illustrate the theme. These projects become part of the student's portfolio, documenting for both the teacher and the student his or her growth over time.

Isolated Versus Integrated Assessment

Teaching to the Test Accompanying the move from a single test as a measure of student learning to multidimensional assessments, has been a move to integrate assessment into the classroom instructional process. Viewing a test only as an "event" signaling completion of instruction is no longer appropriate for the new vision that learning is a process in which students orchestrate learning strategies in a dynamic flow as they move in and out of different tasks and phases of learning. Assessment, too, needs to be considered as an ongoing dynamic process.

Figure 2 shows assessment as part of a process which enables students to become successful learners. Assessment, in this schematic, becomes the feedback that enables students to be strategic in their own learning process and enables teachers to adapt the instructional process to meet the needs of their students. Assessment helps teachers communicate expectations and standards of learning and performance to students. Assessment helps students gain information about what is valued, set personal academic expections, internalize the required knowledge and skills, promote their self-knowledge about performance, understand who is in control of learning, and improve their learning.

Figure 2. Assessment and Instruction



The direct linkage between expectations, instruction, and assessment is evident in Figure 2. The expectations for learning will drive both the instructional and assessment process. If it is important that expectations and assessment be linked, then it *is* also appropriate to say that a teacher should be teaching to the assessment given that assessment is authentic. Without a clear relationship between the two, neither students nor teachers can use assessment information to its greatest potential in promoting learning.

Examples of dynamic and ongoing assessments that enable teachers to modify instruction as needed are the techniques developed by Campione and Brown and by Weinstein and her colleagues. While greater attention to these strategies will be given in ***Guidebook 9***, it is helpful to mention them here.

Dynamic Assessment The concept of dynamic assessment is a natural extension of the idea of integrating assessment and instruction. Based on pioneer work done by Jensen and Feuerstein, Campione and Brown are developing dynamic assessment techniques for daily use in the classroom. Teachers employing these techniques present students with increasingly explicit cues and prompts for performing a task. Teachers may limit support by giving hints about the general approach to a particular problem or they may need to provide a specific blueprint for solving a problem. The number of hints required for the student to solve each problem serves as a measure of learning efficiency. The fewer the cues given, the higher the learning efficiency; the greater the number of cues given, the lower the learning efficiency. The assessment of learning efficiency focuses on how much help is needed for students to reach their learning potentials in a particular domain, rather than a static measure of what has already been acquired.

Assessment of Learning and Study Strategies Weinstein, Schulte, and Palmer have constructed an instrument, called the Learning and Studying Strategies Inventory (LASSI), that measures the use of strategies among secondary and postsecondary students. It identifies students' weaknesses and provides data on the effectiveness of training programs for students who have poor learning and study habits. Students' attitude, motivation, time management, anxiety, concentration, information processing, study aids, self-testing, and test strategies are measured. The test focuses on modifiable behaviors in learning. For example, in the area of motivation, students are assessed on their diligence, self-discipline, and willingness to work hard. LASSI enables educators to help students become self-directed and self-managed learners.

The new vision for learning requires an educational environment where instruction and assessment are integrated and where assessment is not considered to be a single event. The concept of dynamic assessment as an active process in which students and teachers participate provides a model for new assessment techniques which are aligned with the new vision for teaching and learning.

How Do You Implement Multidimensional Assessment?

In one sense, much of this essay has been devoted to providing rich examples of multidimensional assessment. Other issues must also be addressed. Schools need to examine their learning and curricular goals and then select tasks that validly assess these goals. Indeed, part of the problem with more traditional assessment tasks has been their misinterpretation and misuse, not only by some schools, but also the public. These dangers are not eliminated simply by adopting new forms of assessment, but by soul-searching consideration of the whole range of issues surrounding assessment.

Some states have taken leadership in developing criteria for such assessment and others are following their lead. Teachers and other school staff can assume local leadership roles in setting and applying criteria for assessment procedures that are reliable and valid. For example, portfolios and exhibitions will not of themselves ensure that the problem of student assessment has been solved. Teachers need to understand issues of reliability and validity as they relate to these new tasks. What makes a portfolio "good?" Will one teacher view a student's portfolio as excellent and another view it as mediocre? What guidelines ought teachers provide to students for judging their own work, thus encouraging valid self-assessment?

The problem inherent in these questions is that teachers may use their own idiosyncratic criteria for evaluating portfolio performances and other assessments. All members of a school staff need to develop common sets of criteria for judging students' work. Such efforts are more likely to result in valid and reliable assessment. And by participating in the process of setting criteria, teachers will be more likely to understand and adhere to these criteria.

Purposes of Testing

The call for educational accountability throughout the United States has had a great impact on the assessment practices in the public schools. Historically, testing was primarily the domain of the classroom teacher. Today, federal program requirements, state and district accountability concerns, testing for minimum competency, testing for special diplomas, testing for admissions, and national/international assessments have made required assessments prevalent in the schools. As this movement continues it becomes increasingly important that educators design an assessment program which has a clear purpose for each assessment and a clear understanding of the use that will be made of the assessment data.

Generally, the overall purpose of student assessment is to provide valid information for decision making. Since educators, students, parents, the public, and governmental agencies make many different types of decisions, assessments need to be designed for a variety of specific purposes. The purpose of each assessment should be directly related to decisions about students. Those decisions, in turn, are related to decisions about educational programs in schools, districts, states, and nations. Some decisions about *students* made from assessment information are:

- **Diagnosis** Monitoring students' strengths, weaknesses, and progress in specific areas
- **Placement** Matching students to appropriate levels of instruction
- **Guidance and Counseling** Helping students make appropriate educational and vocational decisions
- **Admissions** Choosing students to be admitted into various programs
- **Certification** Determining mastery of specified criteria

Some decisions made about *educational programs* are:

- **Evaluation** Judging the value and effectiveness of instructional programs and delivery systems
- **Accountability** Reporting results to specific publics
- **Research/Planning** Identifying educational areas requiring further study

Criteria for an Assessment Program

Although there are many purposes for assessment data and many different decision makers who use this information, an important consideration for schools and districts continues to be the alignment between expectations, instruction, and assessment. Schools continue to be bombarded with expectations placed on them from society by state, district, legal and other requirements; available tests and other instructional materials; and professional standards. With these increased expectations, the issue of alignment becomes increasingly difficult, but essential to understanding the meaning of assessment information.

According to Joan Herman, UCLA Center for Research on Evaluation, Standards and Student Testing (CRESST), educators will be increasingly challenged (1) to articulate the significant outcomes which constitute their new vision of multidimensional learning; (2) to design and implement effective strategies to help students achieve these outcomes; (3) to assess the extent to which these outcomes are attained in fair, valid, and appropriate ways; and (4) to use the results of these new assessments to improve student learning. The match between significant learning goals, instructional programs, and assessment tools is a key element in implementing such an approach; the match, in fact, undergirds the validity of the assessment itself. At present, however, the match is problematic: traditional assessments simply do not adequately reflect the new vision and their utility thus is limited. New measures will have to be created.

Focusing more directly on criteria for the assessments themselves, Sheila Valencia states the following: (1) Sound assessment is anchored in authenticity—authenticity of tasks, texts, and contexts. This means assessing the orchestration, integration, and application of skills in meaningful contexts. (2) Assessment must be continuous. This means that drafts, plans, and sketches become as important a part of the total picture as final products. (3) Assessments must measure or sample a wide range of cognitive processes and/or abilities. (4) Assessments must provide for active, collaborative reflection by both teacher and students. This means that students must also be active participants in designing assessment tasks and be given increasing responsibility for using assessment data to monitor and improve their own learning.

Some additional criteria for developing assessments should be considered. First, assessments should be fair to different cultural and family backgrounds as well as actively access and mobilize the unique resources bestowed upon learners because of their backgrounds. Second, assessments should have a variety of real audiences, beyond a solitary teacher, including peers, parents, and community members.

A Call for a New Vision of Assessment in Education

Dissatisfaction with the limitations of testing and continued faith in the value of creative multifaceted assessment has given rise to proposals for new assessment alternatives at all levels of education, from the National Assessment of Educational Progress, to those charged with responsibilities for state and district assessments, to those interested in better classroom assessments. The underlying ideas of all these proposals share some common threads: These alternative assessments ask students to perform, create, produce or do something that requires them to use higher-level, problem-solving skills; the assessment tasks themselves represent meaningful instructional activities; the tasks themselves are also relevant to real-life tasks or represent those that are common to a particular discipline. Connecticut and California are among those states dealing with large scale assessment in innovative ways.

California

California's Department of Education believes that a major purpose of assessment is to evaluate the quality of learning. Recognizing that multiple-choice tests traditionally used in large-scale assessment measure only isolated skills and facts, the California Assessment Program's (CAP) goal is to measure students' ability to apply what they have learned to real-life situations. CAP will align assessment with California's new curriculum mandates—that curricula be literature-based, value-laden, culturally-rich, and integrated across content areas. Assessment will reflect new outcomes—that students gain the knowledge and skills necessary to analyze, organize, interpret, evaluate, and communicate life experiences.

New types of assessment being introduced include open-ended questions, essay, portfolio, oral, and integrated performance assessments. The new program also calls for assessment in more content areas at more grade levels.

In the mathematics area, open-ended questions allow students to solve problems creatively and construct answers that demonstrate the depth of their understanding. When answers are written, students are able to show others how to solve problems, and teachers gain important insights into how much a student knows. An example at the twelfth grade level is:

> James knows that half of the students from his school are accepted at the public university nearby. Also, half are accepted at a local private college. He thinks that this adds up to 100 percent, so he will surely be accepted at one or the other institution. Explain why James may be wrong. If possible, use a diagram in your explanation.

A team of teachers is developing an integrated language arts assessment tool. Assessment of students' work occurs as they are engaged in typical classroom activities - reading, talking, writing, and thinking about literature and human experience. Assessment tasks challenge students to discover what is important, meaningful, and valuable in a text and to write responses that give evaluators insight into the processes of student thinking and construction of meaning. The goal is to develop students' capacities for flexible, insightful, productive thinking. For example, eighth grade students are asked to write an evaluative essay about the worth of a book or type of music and then support their judgments. Students set criteria, analyze the subject, and select evidence to support their judgments.

In science, students will demonstrate knowledge of scientific concepts and processes, problem-solving ability, and performance of scientific investigations. For example, given a handful of materials, sixth grade students are asked to design and perform an experiment to determine which of two magnets is stronger. Open-ended questions are also used; they engage students in creating hypotheses, designing investigations, and writing about social and ethical issues in science.

Assessments of student achievement in history and social sciences will allow students to demonstrate breadth of learning as well as the ability to clarify issues, recognize relationships, determine causes and effects, interpret evidence, and argue for a position. Test instruments will assess a deep knowledge of eras and events rather than isolated minutiae. Testing will provide feedback on a new enriched curriculum which immerses students in a historical context, involving them in the literature, historical documents, and lives of the people of an era. Assessment activities include debating, dramatizing, and defending a point of view orally or in writing. Finding out how well students can think about history will be as important as finding out what they know.

Responses from both teachers and students to field-testing programs have been very positive. Students actually enjoy taking tests and teachers are eager to receive training.

Connecticut

The state of Connecticut is also a leader in the use of multidimensional assessment. It is being driven by a carefully articulated vision of learning, Connecticut's Common Core of Learning (CCL).

The Common Core, adopted in 1987, sets forth what the state believes should be the outcomes of education in its public schools. It details what graduates should know and be able to do as a result of the entire K-12 school experience. The Core is meant to provide integrated and interdependent learning outcomes in three major areas: Attributes and Attitudes, Skills and Competencies, and Understanding and Applications. The state emphasizes that CCL is not meant to define minimum competencies, but rather a set of standards for an educated citizen. Although the Core is not mandated, it is meant to give local districts a clear direction as they develop curriculum.

In conjunction with the Common Core of Learning, the Connecticut State Department of Education initiated a multi-year assessment project to measure the extent to which their students are achieving the outcomes described in the Core. They are working to develop a new model which includes exhibitions, hands-on performance experiences, student portfolios and other tasks that require students to demonstrate knowledge-in-use.

Illustrative of the CCL performance tasks is the Food Market Comparison described below.

> Many local food markets claim to have the lowest prices. But what does this really mean? Does it mean that every item in their store is priced lower, or just some of them? How can you really tell which supermarket will save you the most money? Your assignment is to design and carry out a study to answer this question.

The students are directed to work in small research groups to design, undertake, and evaluate a study. They are graded on their group work and their individual reports on the project. Each student is also required to keep a log documenting the process.

Connecticut also provides sustained training and support to teachers in order to help them (the teachers) understand, design, and evaluate performance tasks.

The segments of this program reflect continuing belief in the importance of assessment—for accountability, program and curriculum improvement, and feedback to teachers, parents, and students—but strongly call for new perspectives on assessment and alternative measurement approaches. Hard thinking about what students should accomplish, how they should develop, and what specific components they need to acquire are the basic building blocks for constructing better visions of assessment for the future.

ESSAY ACTIVITIES

Why Should Assessment Be Based on a Vision of Learning?

What Are the Major Changes in Testing and Assessment?

How Do You Implement Multidimensional Assessment?

Why Should Assessment Be Based on a Vision of Learning?

Activity: Are your assessment practices consistent with your vision of learning?

This activity can be done with a group of teachers. REVIEW your vision of learning from ***Guidebook 1*** and WRITE it below. LIST examples of assessment activities you currently use, and IDENTIFY ways they are consistent or are not consistent with your vision of learning. CREATE some ways to change these activities so that they are more consistent with your vision of learning.

Your vision of learning:

Activities	**How are they consistent or not consistent?**	Ways to Change

What Are the Major Changes in Testing and Assessment?

Activity 1: Does your vision of learning include multiple abilities or only verbal and logical-mathematical abilities?

COMPARE your vision of learning to Gardner's. EXPLAIN if and how your vision of learning reflects his multiple abilities. This activity can be done with a group of teachers.

How does your vision include these abilities?:

Verbal

Musical

Logical-Mathematical

Spatial

Bodily-Kinesthetic

Intrapersonal

Interpersonal

Activity 2: How can you change from testing to assessment?

WRITE examples of testing and assessment activities you currently do below, when (time of the year) you do it, how often do you do it over a year, and your purposes for doing it. PUT a check mark next to the activities that are traditional testing. REVISE those activities to be consistent with assessment. To help you do this, REVIEW examples in the ***Guidebook*** and READ the examples below. This activity can be done with a group of teachers.

Example 1, Science (from Cory Wisnia, Mendocino, California):

After learning about genetics, students design their own genetic family with several observable traits. Then the class, as a limited "gene pool" island culture, intermarries through several generations, creating family trees. Students then write a family history with a photo album from the viewpiont of a third-generation member of their imaginary family.

Example 2, English (from Carleen Osher, South Medford High School, Medford, Oregon):

All seniors are required to complete a senior project. Students write an eight- to ten-page research paper; create a related project; and speak to a panel of experts about their project, the research, and their personal growth. For example, one student composed a song, performed it for the panel, and discussed the musical arrangement of it that she created for a 20-piece band.

Current Activities	When	How Often	Purpose

Revised Activities	When	How Often	Purpose

42

Activity 3: How can you change from unilateral to multidimensional assessment?

CREATE <u>new</u> assessment activities that are not in the logical-mathematical or verbal domains. Be sure your activities reflect multidimensional assessment and are responsive to linguistic minority students. This activity can be done with a group of teachers.

Activity	Domain(s) assessed	How is this activity responsible to the needs of minority students?

Activity 4: How can you change from isolated to integrated assessment?

This activity can be done with a group of teachers.

DESCRIBE how you would integrate learning, teaching, and assessment in your classroom and school.

EXPLAIN why or why not dynamic assessment is appropriate for your students.

DESCRIBE dynamic assessment you already provide or could provide that will help your students learn. EXPLAIN why you think dynamic assessment is important.

How Do You Implement Multidimensional Assessment?

Activity 1: What criteria can help you implement multidimensional assessment in your classroom?

This activity can be done with a group of teachers.

REVIEW the criteria discussed in this guide and ADAPT them so they are appropriate for assessment in your classroom and/or school. EXPLAIN how you could ensure that you meet your criteria.

Activity 2: How can you integrate multi-dimensional assessment with instruction?

SELECT a unit you will teach (or revise one you have taught). (You may use the same unit planned in ***Guidebook 2*** or ***3***.) SUMMARIZE your goals and objectives for the unit with regard to content and thinking skills and collaborative roles. PLAN how you will assess students, using at least two types of assessment. DESCRIBE the benefit of your assessments for students, parents, or others.

Goals and objectives

Assessments

Benefits to students parents, others

45

SCHOOL-BASED ACTIVITIES

Activity 1: Preparing for Change

Activity 2: Getting Started

Activity 3: Continuing to Grow

Note: The activities in this section are sequenced to address different levels of involvement in the restructuring process. Begin by selecting the activities best suited to your school.

Activity 1: Preparing for Change

This activity should be done with a group of teachers and administrators, and parents (if possible).

Part A: How can you plan changes in testing and assessment practices in your school?

New views of assessment described in the ***Guidebook*** and the video conference should not be planned without attention to the mission of your school, its vision of learning, curricular goals and objectives, and a new vision of instruction. Below are steps for changing assessment practices that take these factors into account.

STEP 1: DETERMINE your school's mission and your vision of learning. WRITE them below.

Mission:

Vision of learning:

STEP 2: WRITE curricular goals based on your mission statement and vision of learning. ANALYZE the strengths and weaknesses of your current assessment practices for achieving your vision of learning and your curricular goals.

Curricular goals

Strengths of current assessment practices

Weaknesses of current assessment practices

STEP 3: DEVELOP general assessment goals based on your analysis of current practices and sample strategies and activities for assessment practices that (1) are multiple assessments rather than isolated tests, (2) tap multiple abilities, (3) are multidimensional, and (4) are integrated with teaching and learning.

Goals

Sample strategies and activities

STEP 4: The next step is to think about the implications of implementing new assessment practices. Some factors will inhibit change. As you work to achieve your goals, you are likely to find resistance within yourself as well as externally. The ***Guidebook*** pointed out that schools and teachers within them must respond to mandates and expectations of state, district, professional standards, parents, and society at large. EXAMINE factors listed below that may prohibit change. ADD your own ideas. Then, BRAINSTORM and DESCRIBE ways to overcome each factor.

Factors that prohibit change	**Ways to overcome**
Personal	
Colleagues	
Funding	
Time	
Research	
Consultants	
Community/business	
District	
State	
Parents	
Current schedules	
Current reporting and grading procedures	

STEP 4 *(continued)*: BRAINSTORM and LIST factors in your school that will facilitate changing assessment practices, and DESCRIBE how these factors can facilitate change and how you can make the best use of them.

Factors that facilitate change	**How they facilitate change and how you can make the best use of them**

Part B: How can you implement your goals?

WRITE an action plan for accomplishing your goals.

What is an example of what can you do immediately?

What is an example of what can you do in the next few months?

What is an example of what can you accomplish by the end of the next school year?

Activity 2: Getting Started

This activity should be conducted by teachers, administrators, and parents (if possible) involved in restructuring in your school or district.

Part A: How can you use portfolios and performance-based assessment?

1. FORM small groups (3-5 people per group). Each group should PLAN how to use portfolios in the content area of their choice by answering the following questions.

   a. What will be the purpose of the portfolio?

   b. How will decisions be made regarding the specific pieces the portfolio will contain?

   c. What will the portfolio contain?

   d. How will the teacher use the portfolio?

   e. How will the students use the portfolio? Why will it be valuable to him/her?

   f. How will the parents use the portfolio? What will it communicate to them?

g. How will the portfolio be evaluated—what criteria will be used?

h. Who will evaluate the portfolio?

i. How often will it be evaluated?

2. Each group should also PLAN for the use of a performance-based assessment in the content area of their choice by answering the following questions.

   a. What types of performance will be required?

   b. Who will determine the specific performance?

   c. How will the performance be evaluated — what criteria will be used?

   d. Who will evaluate the performance?

Part B: What contributions can individuals on your staff make for changing assessment?

1. FORM small groups (3-5 per group). Each person should DESCRIBE the contributions they want to make to changing assessment practices in your school.

2. SUMMARIZE the contributions within each group and then COMBINE the lists to summarize the contributions to be made in the whole school.

3. ADD contributions to the action plan outlined in the **Preparing for Change** section.

Activity 3: Continuing to Grow

How do your current restructuring efforts address new assessment?

ANSWER the following questions as they relate to changing assessment practices in your school or district.

1. What school or district efforts are underway to restructure instruction and assessment?

2. What support networks are available to teachers, administrators, parents, and others involved in your school or district's restructuring efforts? What additional support would be valuable? What can be done to garner such support?

3. What revisions or additions would move your efforts closer to a thinking curriculum that includes the use of collaborative classrooms and multidimensional assessment?

4. What school or district efforts are underway to involve parents and the community in restructuring? These may include efforts to educate parents and the community on what changes are being made and why they are being made, or efforts to involve them in planning.

5. What efforts or planned efforts exist to involve students in restructuring efforts?

ADDITIONAL INFORMATION

Program Descriptions

1. The New Definition of Learning: The First Step for School Reform - The point of departure in thinking about restructuring is to consider a new definition of learning based on recent research in cognitive sciences, philosophy, and multicultural education. Positive attitudes toward learning, toward oneself, and toward others; a strategic approach to learning; and self-regulated learning are key goals emerging from this research. While these perspectives build on earlier approaches to active learning, they are "new" in contrast to traditional models of schooling. Also, it is especially important in our changing and changed society to promote meaningful learning among all students. The vision of meaningful learning developed for a restructured school will determine the curriculum objectives, classroom instruction, assessment, and the social organization of the school.

2. The Thinking Curriculum - If students are to engage in meaningful learning, numerous curricular issues must be addressed. A dual agenda must be implemented focusing both on enriched content and expanded notions of higher order thinking. Otherwise, students will learn isolated skills and facts as ends in themselves. If schools are to become communities of scholars, collaborative learning and the interpersonal skills needed to support it must become part of the curriculum. Activities to develop self-regulated learning and motivation must become part of the curriculum for students of all ages and abilities, but especially for students at risk and younger students. Finaily, higher-order thinking and reasoning must pervade the curriculum from K-12.

3. The Collaborative Classroom: Reconnecting Teachers and Learners - If there are profound changes implied from the new definition of learning for what students learn, there are equally serious consequences for the roles of teachers in the classroom. Teachers will need to facilitate, mediate, model, guide, assist, share, listen, and adjust the amount of support provided. Moreover, many teachers will need to develop strategies for teaching diverse students within heterogeneous classrooms.

4. Multidimensional Assessment: Strategies for Schools - If the curriculum is to change, the current debate over the usefulness, or uselessness, of standardized tests is likely to be intensified. It makes little sense to redesign curricula to teach for understanding and reflection when the main assessment instruments in schools measure only the assimilation of isolated facts and effective performance of rote skills. Alternative assessment methods must be developed to evaluate and increase the capacity of learners to engage in higher order thinking, to be aware of the learning strategies they use, and to employ multiple intelligences. Alternative modes of assessment are valuable both to students in promoting their development and to teachers in increasing the effectiveness of their instruction.

5. Schools as Learning Communities - In schools that are learning communities, students' learning and teachers' instruction use the community and its resources. In addition, the schools promote learning as a lifelong activity for all citizens. As a result, community members increasingly spend more time in schools to learn, provide support services such as tutoring and teaching, and participate in school life. More and more, schools of the future will be places where administrators and teachers learn and work collaboratively. Schools as learning communities may also mean working with local businesses and agencies to provide increased support services to help students and their families become better learners.

6. Many Roads to Fundamental Reform in Schools: Getting Started - Teachers and administrators who form learning communities reflect as a group on schooling and learning—they probe their assumptions about learning, they debate what they see as essential in the educational experience, and they build consensus on what vision of learning will undergird their school's mission. Initiating a broad-based dialogue comparing learning that should occur to learning that is actually occurring is a first step in getting started. A broad-based dialogue includes community members, parents, teachers, administrators, and students. In furthering the dialogue, participants should pursue the implications of their new definition of learning for all dimensions of schooling—curriculum, instruction, assessment, school organization, and community relations.

7. Many Roads to Fundamental Reform in Schools: Continuing to Grow - If all participants in this school community are successful learners, then they know that the process of learning is ongoing and iterative. They know that schooling and learning are driving concepts that must be repeatedly developed in their meaning. Participants are continually learning and re-learning what the mission of the school is, what the vision of learning should be, how to realize this vision, and the many subtle ways the vision is impeded by organizational and attitudinal constraints. Formative evaluation of the restructuring process becomes "business as usual" for the school.

8. The Meaning of Staff Development in the 21st Century - Traditional roles of staff development for teachers and principals focusing on one-shot events are as outdated as traditional models of learning. Therefore, a major task of the restructuring movement is to align models of staff development with new visions of learning to allow teachers and administrators to plan together sustained, high-quality staff development programs. Video Conference 8 focuses on developing new roles for teachers and administrators based on research on expert teaching and staff development.

9. Reconnecting Students at Risk to the Learning Process - New visions of learning suggest that students who are academically at risk have been largely disconnected from the process of learning by segregation into poorly coordinated and impoverished remedial programs emphasizing drill on isolated skills. Research indicates that such students can be reconnected to the learning process by training regular classroom teachers to use teaching/learning strategies which are successful for students in heterogeneous classrooms and by providing them with dynamic assessments and highly enriched learning environments. Video Conference 9 highlights successful programs.

Computer Forums

Much of the value and excitement of participating in this video series arises from the opportunity to interact with presenters and share in the national dialogue on restructuring. Indeed, this dialogue is a primary goal of this professional development series. Yet, there is only so much time available to engage in such dialogue during each video conference. To participate in the continuing dialogue <u>after</u> each video conference, viewers can access LEARNING LINK, a computer conferencing system.

This system was developed for public television to increase the impact of distance learning. Using this system, members can:

- **Ask presenters questions** for one month after each video conference
- Talk to each other to **share experiences**, help solve problems, learn about resources, and ask for assistance
- Participate in **"discussion groups"** organized around specific topics such as the thinking curriculum
- **Access calendars** for events related to restructuring and teaching for thinking and understanding
- **Access new information** pertinent to the video series such as news items, alerts, and announcements of new publications
- **Search** user's communications for information and commentary on specific topics such as assessment
- **Survey** what others think about a given issue
- **Access large documents** that NCREL enters into the system (for example, articles and annotated bibliographies)
- **Exchange strategic plans** with others

Who Will Be Available to Address Questions and Comments?

NCREL and PBS have asked the presenters if they, or their staff, can be available for approximately one month after each video conference to answer additional questions. While we do not expect that all of the presenters will be available, we anticipate that there will be some from each conference in the series. A full-time conference moderator will be available from Indiana University at Bloomington. This person will be able to answer questions pertaining to all aspects of restructuring as well as to respond to technical questions and facilitate conference dialogue.

What Do I Need To Use LEARNING LINK?

All you need to apply is a microcomputer (any brand), a modem, and telecommunications software such as Apple Access 2, Apple Works, Procomm, or Red Ryder.

How Much Does LEARNING LINK Cost?

Regular account membership is $189.00 for 20 hours of access to the system. However, **DataAmerica** and **IBM** have partially underwritten the cost. The first 2,500 people to register will pay only $95.00 for 15 hours. Of these special $95.00 memberships, 1,500 will be reserved for persons in the NCREL region. Memberships will be processed on a first-come, first-served basis. For information,

phone:	or write:
Erica Marks	IntroLink
IntroLink	Learning Link National Consortium
(212) 560-6868	356 W. 58th St.
9:30-5:30 EST	New York, NY 10019

Note 1: While there may be nominal local connect charges, there will be no additional fees for long distance usage for hours of service purchased. This is true whether you pay $189.00 for 20 hours or $95.00 for 15 hours.

Note 2: Members currently using LEARNING LINK service do not need to apply. They are already eligible to participate in the service for this video series through their local LEARNING LINK system. For information, watch for announcements in your bulletin boards.

Remember: You must already have a microcomputer, a modem, and telecommunications software in order to access LEARNING LINK.

Materials

Video Conference **Guidebooks** include pre- and post-conference activities as well as other activities for various workshops. Activities are customized for different levels of knowledge. Some activities are introductory; others are more advanced. Each downlink site will receive one camera-ready master copy free of charge for local reproduction as part of the licensing arrangement.

Selected Readings include reprints of various articles and other information for each video conference. We have created a flyer, including an order form, for you to distribute. This form can be found at the end of this book. Two volumes of **Selected Readings** will be available for $15.00 each (plus shipping) from:

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Course Credit Information

In the NCREL region (Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, and Wisconsin), the National College of Education will offer two graduate hours of credit to:

- Groups of students using an approved on-site facilitator
- Individuals employing instructional services by telephone

For more information about credit in the NCREL region, please call Sonja Clary, Associate Dean for Off-Campus Programs, (708) 475-1100, ext. 2335.

In the fall of 1990, PBS Adult Learning Service will offer Restructuring to Promote Learning in America's Schools as a telecourse. For information, please call (800) 257-2578.

Local Involvement

Inside the NCREL Region

NCREL has identified local teams from each of its seven states to assist in implementing the video series. Teams include people in these areas: media, staff development, curriculum and instruction, and rural and urban education. Each team has developed its own implementation plan. Local PBS stations throughout the region will also be a part of the local outreach.

Outside the NCREL Region

You may want to generate activities similar to those in the NCREL region. Some suggestions:

- Your school or agency can provide immediate commentary and analysis at the local site after each video conference.
- Local colleges or universities may use the series as part of course requirements.
- State education agencies and/or other qualified agencies may provide continuing education credits, or equivalent, for participation in the series.
- Local and state education agencies may provide Leadership/Management Academy Workshops, study groups, and/or other workshops using the video series.
- Your school may provide school credits/career advancement for participation.

REFERENCES AND RESOURCES

Bibliography

Video Sources

Presenters' Biographical Information

Regional Resources

61

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Video Sources

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Key Elementary School	This segment, which includes includes video archives from Key Elementary School plus classroom demonstrations of teachers using performance-based assessments, was developed and copyrighted by NCREL (1990).

Presenters' Biographical Information

Joan Boykoff Baron

Joan Boykoff Baron has worked for the Connecticut State Department of Education for ten years—first as Project Manager of the Education Evaluation and Remedial Assistance (EERA) Program and then as the Project Director of the Connecticut Assessment of Educational Progress (CAEP) Program and currently as Coordinator of the Common Core of Learning Assessment. She is also principal investigator on a National Science Foundation project to develop science and mathematics performance tests for high school students. Dr. Baron was Project Director of the 1984-85 CAEP Science Assessment which included a practical hands-on component. The CAEP program is highly regarded nationally as a state program which has attempted to directly measure important skills that typically are not included on statewide tests. The CAEP Program has been committed to achieving ecological validity by developing performance tasks which closely resemble tasks and activities valued by the educational and broader community. Dr. Baron authored and coauthored two articles based upon these assessments which appeared in *Educational Measurement: Theory and Practice.* In 1985 and 1986, Dr. Baron coordinated the development of programs for two major thinking skills conferences, coedited a book entitled *Teaching Thinking Skills: Theory and Practice* and wrote articles for *Educational Leadership* and their edited volume *Developing Minds: A Resource Book for Teaching Thinking.*

Patricia Miller Bolanos

Patricia Miller Bolanos studied at St. Mary-of-the-Woods College (1952-54), Universidad de las Americas, Mexico, D.F. (B.A. 1955), Butler University (M.S. 1976), Herron School of Art (1972-79), and currently is a doctoral candidate in Art Education and School Administration at Indiana University, Bloomington (1983-90). Her instructional leadership experience includes: Coordinator of the Creativity Project, Curriculum Articulation Grant for the Gifted and Talented, Indiana Department of Education (1984-85), Project Director, Key School Collaborative Professional Development Project, funded by Lilly Endowment, Inc. (1986-87), Projector Director of the video, *The Making of a School,* funded by the Indiana Department of Education, Teacher Quality Program (1987-88), and Principal of the Key School Option Program, Indianapolis Public Schools (1987 to present). She is a recipient of the following awards: Lilly Teacher Open Fellowship (1981), the Indianapolis Chamber of Commerce 21st Century Leadership Award (1987), and the Indianapolis Education Association Human Rights Award for Leadership in Education (1989).

Kathleen B. Comfort

Kathleen B. Comfort is an Educational Consultant for the California Assessment Program (CAP), California State Department of Education. She is currently providing leadership in guiding the efforts of

the statewide CAP Science Assessment Advisory Committee in developing prototypes of innovative science assessment tasks such as performance tasks, open-ended questions, and portfolios for grades 6, 8, and 12. Ms. Comfort has taught science to students in grades 6-12 in both California and Washington state, and has served as a mentor teacher, Science Education Specialist, and Coordinator of Curriculum and Testing for the Shasta County Office of Education in Redding, California. She has also served as president of the Redding Chapter of Phi Delta Kappa, and as director on the board of the California Science Teachers' Association. Ms. Comfort has also chaired several statewide science conferences. Other current activities include participation on the National Science Teachers Association Task Force on Portfolios in Science, and collaboration on a three-state proposal to support the development of cognitive, curriculum-based assessment modules in science. Ms. Comfort received her degrees from Western Washington University, California State University, Los Angeles, and Trenton State College in New Jersey.

Howard Gardner

Howard Gardner is a leading cognitive psychologist in Boston who has written extensively about human creative processes. He investigates human cognitive capacities, particularly those central to the arts, in normal children, gifted children, and brain-damaged adults. As a first-year graduate student at Harvard, Dr. Gardner chose to direct his own research toward a developmental psychology of the arts. He became a member of a research team at Harvard called "Project Zero" that sought to unravel the nature of artistic thinking. His work during the last 15 years as a member (and, more recently, as co-director) of Project Zero led to numerous experimental studies and to his first book, *The Arts and Human Development* (1973); many of his other writings since then have espoused the cause of development and the arts. Dr. Gardner is author of over 250 articles in professional journals and wide-circulation periodicals. Among his books are *The Quest for Mind* (1973 - 2nd ed., 1981), *The Shattered Mind* (1975), *Developmental Psychology* (1978 - 2nd ed., 1982), *Art, Mind and Brain* (1982), *Frames of Mind (1983), The Mind's New Science* (1985), and, most recently, *To Open Minds: Chinese Clues to the Dilemma of American Education* (1989). For the last decade, he has also spent a large part of his time conducting neuropsychological investigations of the effects of brain damage on mental activity, especially in the arts. At present, Dr. Gardner serves as Professor of Education and Co-Director of Project Zero at the Harvard Graduate School of Education.

Grant P. Wiggins

Grant P. Wiggins is Director of Educational Research and Development for CLASS, a Rochester, NY, educational research and consulting firm. The mission of CLASS is to help schools and districts conceptualize and manage change around enhanced student performance, exemplary pedagogy and adult professionalism. Since moving to Rochester, Dr. Wiggins has also worked for the National

Center on Education and the Economy on issues of assessment, and is working with the Rochester school district to develop and implement more authentic, performance-based forms of student assessment. From 1985 to 1988 Dr. Wiggins served as the Director of Research in Curriculum and Teaching for the Coalition of Essential Schools, a national secondary school reform project involving over 50 schools, based at Brown University and headed by Ted Sizer. He conducted local and regional workshops for teachers in Coalition schools, wrote the supporting print materials on curriculum and instruction, developed a videotape on the theme of *Student As Worker, Teacher As Coach*, and furthered Sizer's idea of "diploma by exhibition of mastery." Dr. Wiggins presently serves as a consultant to the states of Vermont, Connecticut, New York, and California on assessment. His recent writings include articles on grading in *American Educator* and on "authentic" alternatives to standardized tests in *Educational Leadership* (April '89) and *Phi Delta Kappan* (May '89). His 15-year high-school teaching career spans three disciplines but has been rooted in philosophy. Dr. Wiggins was one of a number of pioneers in the '70s who developed courses in philosophy (ethics, theories of knowledge, etc.) at the secondary level.

Protase E. Woodford

Protase "Woody" Woodford is Head of the Languages Group, Test Development, School and Higher Education Programs Division of ETS. He is the Test Development Coordinator of the Test of English as a Foreign Language (TOEFL). Mr. Woodford designed, developed, and administered the Test of English for International Communication (TOEIC) in collaboration with the Ministry of International Trade and Industry in Japan. He and his Test Development Staff were among the first FSI certified testers outside the Federal Government when ETS assumed responsibility from FSI for Peace Corps Language Proficiency Testing. The ACTFL-ETS guidelines are a direct outgrowth of the "Common Yardstick" project directed by him under a Federal grant to establish a common set of descriptors of Language Proficiency. In 1970, he and his staff introduced listening comprehension tests in French, German, Spanish, Italian, and Russian into the College Board's Admission Testing Program. Mr. Woodford also directed the ETS Test Development effort for a new generation of Defense Language Institute Tests in the 1970s. Under his direction, ETS developed ESL (English as a second language) and bilingual teacher language evaluation programs for New Jersey and Texas and a number of other states. Mr. Woodward is the author of more than a dozen Spanish and ESL textbooks. Prior to his employment at ETA in 1966, he taught Spanish in schools and colleges in New Jersey, foreign language methodology at the NDEA Institute and in college, and served on the College Board Spanish Test Committee.

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